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ABSTRACT

The differences between the reading abilities of 359 community-college students in selected classes and the readability difficulty of the texts used in those classes were examined. The Diagnostic Reading Test, Form A was administered to the subjects, and results showed that 35.9 percent of the population read at or above grade level 13; 33.5 percent read at grade levels 10, 11, or 12; 19.1 percent read at junior-high level; and 11.4 percent read below grade level 7. Thus, almost two-thirds of the subjects were reading below grade level. The texts used in the 16 classes were analyzed according to the Dale-Chall formula, and 14 of the 29 texts were more than one grade level above the reading ability of the students who used them. Five of the texts were rated at grade level 16, or graduate level, and the classes in which they were used had average reading ability rated from grade levels 10.9 to 12.2. It was recommended that teachers give more attention to the readability levels of the texts they select and that publishers assist this effort by advertising the readability levels of specific texts and other materials. Tables and references are included. (VJ)

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A COMPARISON OF THE READING ABILITIES OF A JUNIOR COLLEGE POPULATION AND THE READABILITY LEVELS OF THEIR TEXTS

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In the summer of 1969 this writer conducted a study of readability of textbooks for three different courses at Columbia Junior College. In addition to the report of the readability levels for the various texts, suggestions were also made on how students could best cope with these texts in terms of the table of contents, the index, the glossary, the end-of-chapter questions, etc. As part of the report, in other words, suggestions were made on how the student could best study-read the text. While conducting the readability portion of the study, it soon became apparent that the majority of the texts being evaluated were beyond the reading abilities of many of the students for whom they were intended. Two of the three texts in one course, for example, were rated on the Dale-Chall formula at grade 16 or graduate level in difficulty. These texts were being used by students in a non-transfer terminal course in introductory biology. Even without testing the students for their reading ability, it would be logical to assume that the students would not be able to effectively deal with these textbooks and learn from them.

In order to determine whether in fact such discrepancies did exist and whether these discrepancies were college wide, it was decided to conduct a more thorough study. Such a study would entail two factors: the assessment of the reading abilities of the students at the college, and the assessment of the readability levels of the texts and teacher

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-prepared materials for each class in the college. Because of contingencies not realized in the planning portion of the study, both of these factors had to be modified later in the project. Instead of testing the whole student population of the college, we had to settle for a representative sampling. And instead of conducting a readability analysis of all of the texts and teacher-prepared materials, only those texts and materials related to the classes tested were analyzed.

It should be made clear at the outset that this study was not conducted to provide definitive research data or to provide an example of how pure research should be carried out. It was conducted to hopefully provide some answers to some vexing questions, to provide teaching colleagues with some information about one or two of the characteristics of their students, and to provide some information for the feeder high schools about the characteristics of their graduates. It was hoped, in addition, that teaching colleagues in other disciplines would learn about and begin to appreciate the significant relationship between the reading abilities of their students and the difficulty levels of the materials with which they were asked to deal. It was one of the aims of the study, in fact to generate enough interest in this reading ability-readability relationship to conduct in-service workshops to teach instructors how to apply a readability formula when making textbook selections.

This study, then, is not research looking for an application, it is an application looking to answer some questions within a community college setting.

CHARACTERISTICS OF THE POPULATION

Columbia Junior College as a college in the California Community College system, is an open door institution. As such the student body is representative of the general population of the area served and includes students whose academic aptitudes range from the lowest to the highest level on any scale. A primary concern of the institution as reflected in its philosophy and guiding principles is that the open door does not become a revolving door, but rather helps each student to achieve that level of success of which he is capable by carefully structuring the learning situation. In this setting, texts and the teacher become secondary in importance, while the structuring of the learning experience for each individual participant is the primary responsibility of the institution.

In its three years of operation, the instructional program of Columbia Junior College has been developed to place maximum emphasis on the involvement of a carefully structured series of learning experiences which will allow each individual participant to achieve progressively higher levels of learning in the selected area based on his own rate of learning. The instructional program is based on the large group, small group, and individual study organization. Much emphasis is given to individualizing learning and providing learning experiences through which students may progress at their own pace. Many of the materials used in the classes are teacher prepared.

On the basis of three years experience in the development of such an instructional approach, it has become apparent that greater attention must be given to devising the means by which the student is assured the optimum opportunity to achieve success in his individual learning program. At least a part of that means concerns the relative difficulty of the course materials in the students' individual learning program.

In a study conducted by Belden (1) the author states, "If course materials are on a level above the reading skill of the students, frustration, anxiety and failure result. Without doubt, the relationship between the difficulty of material and the reading ability of the students present one of the most pressing problems for those who rely upon printed materials for learning experiences." In view of this observation and in view of the fact that the instructional approach at Columbia Junior College still relies heavily on printed materials for learning experiences, it was decided to pursue the question presented earlier. That question restated is--to what extent, if at all, is there a difference between the reading abilities of students in selected classes and the readability difficulty of the texts used in those classes?

Early in the Winter Quarter, 1971, testing of selected classes was begun. The Diagnostic Reading Test, Form A (7) was given to a total of 359 students in 16 different classes. None of the students were tested more than once. Those students who had taken the test previously were excused from

class for the testing period.

The results of this reading test are shown on Table I. This Table reveals that 35.9 percent of the population tested were reading at or above grade level 13. Those reading slightly below grade level or at grades 10, 11, and 12, constitute 33.5% of the population. 19.1% of the population were reading at a grade level of 7-8-9, or junior high school level. Those reading below the 7th grade level of ability comprise 11.4% of those tested. In an overview, then, slightly over one-third of the tested group were reading at or above grade level, while a little less than two-thirds were reading below their grade level.

According to McClellan (6) who cites Halfter (4) and Hadley (3), these results are in line with other studies of a similar kind. And while it may be somewhat comforting to find that similar studies have revealed like results, it is truly disturbing to contemplate the seriousness of the fact that approximately two-thirds of a freshman class will have a crippling reading handicap.

At the same time that the testing was being conducted, assistants were being interviewed, selected, and trained to help conduct the readability analysis of the numerous texts using the Dale-Chall formula (2). Four assistants were finally selected and trained and began work in late January. Those assistants did the major portion of the sample taking, the counting of sentences in the samples, and the determining of unfamiliar words when compared to the Dale-Chall list

of 3000 familiar words. The computational tasks, however, were completed by the investigator.

Table II shows that in a number of cases the required texts for the courses are somewhat inappropriate when compared with the average reading achievement of the class. Class B, for example, has three required texts, only one of which may be said to be appropriate for the entire class. The other two texts at grade levels 13-15 and 16 are, if we consider the class reading grade level of 11.1, probably not going to be of sufficient value to the students to learn from them at maximal levels. At least it can be said of the texts required for Class B that ONE of the texts is probably suitable even if two others are not. In those classes where only one text is used, however, and where that text is beyond the capabilities of the majority of the class members, the student is really handicapped. Such is the case in Class E. The corrected grade level of the text is 16, or graduate level, while the class reading grade level is 10.9. To expect that the majority of students will optimaly learn from this text is indeed questionable. In classes with multiple texts and assuming that the grade level difficulty of at least one or two of the texts is commensurate with the reading ability levels of the majority of the class, students would appear to stand a better chance to learn more and therefore succeed more. Class D, a U.S. History class, for instance, has four required texts. The class reading grade level is 11.4 and two of the required texts are in the 11-12 difficulty range. Unfortunately, these two texts are required collateral reading and do not have the weight of the other two texts which are

the primary texts for the course. These other two texts have a corrected reading grade level of 13-15 and 16+ respectively. In some cases then, the student does not have an advantage with courses using multiple texts.

Rather than looking only at the class reading grade level and comparing that to the difficulty level of the text or texts required, it may be useful to look at the actual reading ability range of a representative class. Class C, an Art History course, for example, has one required text with a graded difficulty level of 13-15. The class reading grade level is 11.5 and there are 30 students in the class. Of these thirty students, less than half (12) are reading at grade level while 8 more are reading at a level slightly below their assigned grade. The remaining ten students are reading at a grade level below 10th grade reading ability. Eighteen of the thirty students in this class, in other words, will probably experience serious difficulty in learning from this text. In another instance, this time with an introductory sociology class of 25 students with a class reading grade level average of 10.9, the one required text has a corrected grade level of 16 or graduate level. Five of the twenty-five students are reading at their grade level, nine are reading at a level slightly below or at a 12th grade reading ability level, while the remaining eleven students are reading below the tenth grade level. In view of the graded difficulty level of the text for this class, it would seem logical to assume that the majority of students in this class would find it difficult to learn from the printed material.

CONCLUSIONS AND RECOMMENDATIONS

Of the twenty-nine texts evaluated for the sixteen different classes, almost half of them, or 14, proved to be inappropriate for the learners if we say that a text should not be more than one grade level above the reading ability of the student who uses it. If, in addition, the results of this study are borne out by replication in other college settings, it would appear imperative that readability as a factor in textbook selection be championed throughout our colleges.

It may be argued and correctly so that the texts for a course in most colleges and universities are not the only materials used for instruction, but it is also true that texts and other written materials constitute the primary means of instruction for the learner. And while it is also true that many of our colleagues in other disciplines have expressed genuine concern about the reading abilities of their students, they have at the same time almost totally disregarded or have been ignorant of the importance of the difficulty levels of the materials they choose for their classes. It is incumbent upon the reading specialist, therefore, not only to provide evidence that such discrepancies do exist but he must also be willing to make an effort to teach his colleagues how to employ the tools which measure readability.

It may be, however, that the Dale-Chall readability formula used in this study, or any other similar formula for that matter, does not adequately measure the kinds of

factors which need to be measured in textbooks. It is therefore recommended that other kinds of devices or formulas be developed which would more adequately assess many more characteristics than are currently measured by extant readability formulas. A scale could be developed, for example, which would include in addition to readability levels such factors as the existence and usefulness of such author-publisher aids as indexes, glossaries, end-of-chapter questions, chapter summaries, etc. These factors when weighted and coupled with traditional readability levels might provide the untrained instructor with more adequate information for textbook selection.

The final responsibility for the choice of written materials for classroom use rests with the instructor, but publishers also have a major responsibility here. It is therefore recommended that all of us urge publishers to take into consideration the readability levels of texts when they approach specific markets. Publishers should also be urged to advertise the readability levels of specific texts and other materials in order to insure that unsuspecting or untrained instructors do not make an inappropriate selection. Some publishers and teaching colleagues may argue that readability formulas as they currently exist have serious limitations because they do not measure concept difficulty. This is generally true, but, as Martin has said, "Without some reliable measure of difficulty those who need to be able to match reader ability and difficulty level can rely only on judgment. Trained judgment can be good, but there is general agreement that, even with its

limitations, a good formula can be better." (5)

TABLE I

INITIAL READING GRADE PLACEMENT OF POPULATION

READING GRADE LEVEL	N	PERCENT OF POPULATION
Below 7th grade	41	11.4
7th to 8th grade	12	3.3
8th to 9th grade	40	11.1
9th to 10th grade	17	4.7
10th to 11th grade	29	8.1
11th to 12th grade	91	25.4
13th and above	129	35.9
	Total 359	

TABLE II
A COMPARISON OF THE AVERAGE READING ABILITY OF 16 CLASSES
AND THE CORRECTED GRADE LEVEL OF TEXTS FOR THOSE CLASSES

Class	No. Required Texts	N	Class Rd. Grade Level	Corrected Grade Level of Texts
A	5	46	11.7	1. 11-12 2. 13-15 3. 13-15 4. 11-12 5. 9-10
B	3	69	11.1	1. 16 2. 13-15 3. 11-12
C	1	30	11.5	1. 13-15
D	4	29	11.4	1. 11-12 2. 11-12 3. 13-15 4. 16
E	1	25	10.9	1. 16
F	2	22	12.2	1. 16 2. 13-15
G	1	30	11.4	1. 11-12
H	1	18	12.2	1. 16
I	3	20	10.6	1. 9-10 2. 9-10 3. 9-10
J	1	26	11.0	1. 16
K	1	17	11.7	1. 11-12
L	1	10	11.3	1. 11-12
M	1	13	11.1	1. 13-15
N	1	48	11.2	1. 11-12
O	1	37	9.9	1. 13-15
P	2	18	10.8	1. 11-12 2. 13-15

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